

WHAT IS CLAIMED IS:

1. An objective lens driving apparatus comprising:
 - an objective lens, having an optical axis and focusing light emitted from a light source on an information recording medium;
 - a lens holder, holding said objective lens and having a bearing hole formed therein that extends in a direction substantially parallel to the optical axis;
 - a shaft inserted into the bearing hole so that said lens holder is rotatably supported on the shaft;
 - a pair of magnets supported on said lens holder, said pair of magnets being positioned in such a way that said shaft is between said pair of magnets;
 - a base made of a magnetic material and having a pair of magnetic yokes disposed such that each of said pair of magnets exerts an attraction force on a corresponding one of the pair of magnetic yokes to urge said lens holder both in a direction substantially parallel to the optical axis and in a direction substantially perpendicular to the optical axis;
 - a first coil set of a first focusing coil and a first tracking coil and a second coil set of a second focusing coil and a second tracking coil, said first coil set and said second coil set being wound around corresponding ones of said pair of magnetic yokes.
2. The objective lens driving apparatus according to Claim 1, further comprising a magnetic path member having a pair of extending portions;
 - wherein said lens holder has a pair of through-holes that receives corresponding ones of the pair of extending portions, each of the pair of through-holes being between said shaft and a corresponding one of said pair of magnets and extending in a direction substantially parallel to the optical axis.
3. The objective lens driving apparatus according to Claim 1,

further comprising a pair of plate-like magnetic yokes each of which is supported on said lens holder and disposed between said lens holder and a corresponding one of said pair of magnets.

4. The objective lens driving apparatus according to Claim 1, wherein each of the first focusing coil and the second focusing coil has a first axis of coil;

wherein each of the first tracking coil and the second tracking coil has a second axis of coil substantially perpendicular to the first axis of coil;

wherein when a first current flows through the first focusing coil and the second focusing coil, an urging force is generated between the first and second focusing coils and corresponding ones of said pair of magnets, and acts in a direction substantially parallel to the optical axis; and

wherein when a second current flows through the first tracking coil and second tracking coil, urging forces are generated between the first and second tracking coils and corresponding ones of said pair of magnets, and act in a direction substantially perpendicular to the optical axis.

5. An objective lens driving apparatus comprising:

an objective lens, having an optical axis and focusing light emitted from a light source on an information recording medium;

a lens holder, holding said objective lens and having a bearing hole formed therein that extends in a direction substantially parallel to the optical axis;

a shaft inserted into the bearing hole so that said lens holder is rotatably supported on the shaft;

a pair of magnets supported on said lens holder, said pair of magnets being positioned in such a way that said shaft is between said pair of magnets;

a pair of magnetic yokes;

a base made of a non-magnetic material and holding said pair

of magnetic yokes disposed such that each of said pair of magnets exerts an attraction force on a corresponding one of said pair of magnetic yokes to urge said lens holder both in a direction substantially parallel to the optical axis and in a direction substantially perpendicular to the optical axis;

a first coil set of a first focusing coil and a first tracking coil and a second coil set of a second focusing coil and a second tracking coil, said first coil set and said second coil set being wound around corresponding ones of said pair of magnetic yokes.

6. The objective lens driving apparatus according to Claim 5 further comprising a magnetic path member having a pair of extending portions,

wherein said lens holder has a pair of through-holes that receive corresponding ones of the pair of extending portions, each of the pair of through-holes being between said shaft and a corresponding one of said pair of magnets and extending in a direction substantially parallel to the optical axis.

7. The objective lens driving apparatus according to Claim 5, further comprising a pair of plate-like magnetic yokes each of which is supported on said lens holder and disposed between said lens holder and a corresponding one of said pair of magnets.

8. The objective lens driving apparatus according to Claim 5, wherein each of the first focusing coil and the second focusing coil has a first axis of coil,

wherein and each of the first tracking coil and the second tracking coil has a second axis of coil substantially perpendicular to the first axis of coil;

wherein when a first current flows through the first focusing coil and the second focusing coil, an urging force is generated between the first and second focusing coils and corresponding ones of said pair of magnets, and acts in a direction substantially

parallel to the optical axis; and

wherein when a second current flows through the first tracking coil and second tracking coil, urging forces are generated between the first and second tracking coils and corresponding ones of said pair of magnets, and act in a direction substantially perpendicular to the optical axis.

9. An objective lens driving apparatus comprising:

an objective lens, having an optical axis and focusing light emitted from a light source on an information recording medium;

a lens holder, holding said objective lens and having a bearing hole that extends in a direction substantially parallel to the optical axis;

a shaft inserted into the bearing hole so that said lens holder is rotatably supported on the shaft;

a pair of magnets supported on said lens holder, said pair of magnets being positioned in such a way that said shaft is between said pair of magnets;

a pair of magnetic yokes;

a pair of yoke carrying members made of a non-magnetic material, and each of said pair of yoke carrying members holding a corresponding one of said pair of magnetic yokes thereon;

a base made of a non-magnetic material, holding said shaft and holding said pair of yoke carrying members disposed such that each of said pair of magnets exerts an attraction force on a corresponding one of said pair of magnetic yokes to urge said lens holder both in a direction of the optical axis and in a direction substantially perpendicular to the optical axis;

a first coil set of a first focusing coil and a first tracking coil and a second coil set of a second focusing coil and a second tracking coil, said first coil set and second coil set being wound around corresponding ones of said pair of magnetic yokes.

10. The objective lens driving apparatus according to Claim 9,

further comprising a magnetic path member having a pair of extending portions,

wherein said lens holder has a pair of through-holes that receives corresponding ones of the pair of extending portions, each of the pair of through-holes being between said shaft and a corresponding one of said pair of magnets and extending in a direction substantially parallel to the optical axis.

11. The objective lens driving apparatus according to Claim 9, further comprising a pair of plate-like magnetic yokes each of which is supported on said lens holder and disposed between said lens holder and a corresponding one of said pair of magnets.

12. The objective lens driving apparatus according to Claim 9, wherein said base is made of a magnetic material.

13. The objective lens driving apparatus according to Claim 9, wherein said pair of yoke carrying members are mounted on said base in such a way that said pair of yoke carrying members are adjustably positioned.

14. The objective lens driving apparatus according to Claim 9, wherein each of the first focusing coil and the second focusing coil has a first axis of coil;

wherein each of the first tracking coil and the second tracking coil has a second axis of coil substantially perpendicular to the first axis of coil;

wherein when a first current flows through the focusing coil of each of said first coil set and second coil set, an urging force is generated between the focusing coil of said first coil set and second coil set and a corresponding one of said pair of magnets, and acts in a direction substantially parallel to the optical axis; and

wherein when a second current flows through the tracking coil

of each of said first coil set and second coil set, an urging force is generated between the tracking coil of said first coil set and second coil set and a corresponding one of said pair of magnets, and acts in a direction substantially perpendicular to the optical axis.